

Differential Pressure Meters

Media 6

Media 6 Z



Media 6 with attached valve block

Mounting and Operating Instructions

EB 9527-3 EN

Firmware V3.10

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Signal words used in these Mounting and Operating Instructions

Bold print indicates sections that **require particular attention**.

Note!

Gives supplementary information and hints.

Note!

Essential information or instructions that need to be observed to ensure proper handling and operation

Bold print also indicates information and instructions **relating to safety**.

CAUTION!

*Disobeying instructions may result in **property damage**.*

WARNING!

*Disobeying instructions may result in **property damage** or even **personal injury**.*



DANGER!

*Avoid any contact with live parts!
Disobeying instructions may result in **property damage** or **personal injury**, even pose a **danger to life**.*

Safety instructions

WARNING!

- ▶ The device is to be mounted, started up or operated only by trained and experienced personnel familiar with the product. According to these mounting and operating instructions, trained personnel is referred to as individuals who are able to judge the work they are assigned to and recognize possible dangers due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.
 - ▶ Explosion-protected versions of this device are to be operated only by personnel who have undergone special training or instructions or who are authorized to work on explosion-protected devices in hazardous areas. See also note in section 9.
 - ▶ Any hazards that could be caused in the device by the process medium or the operating pressure are to be prevented by means of the appropriate measures. In addition, make sure that the device is used only in areas where the operating pressure and temperatures do not exceed the operating values that are based on the sizing data submitted in the order.
 - ▶ The Media 6 Differential Pressure Meter is not approved for measuring flammable gases and liquids in Zone 0.
 - ▶ Proper shipping and storage are assumed.
 - ▶ **Note!**
Devices with a CE marking fulfil the requirements of Directives 94/9/EC and 2004/108/EC. The declaration of conformity is available on request.
-



WARNING!

Oxygen service

The dp cell must only come into contact with **gaseous** oxygen when the device is used for oxygen service.

It is also important to ensure that all SAMSON accessories (e.g. valve block) only come into contact with **gaseous** oxygen.

Table 1 · Firmware versions

Changes of the device's firmware compared to previous version	
Old	New
A 2.03/B 2.03	A 2.10/B 2.10
Limit switches	Limit switches A1 and A2 are preset by the software to function as either min or max alarms. They can be configured separately using the keys.
Filling limit during operation (UCW)	Filling limit during operation can be adjusted on the operating keys regardless of the limit switches.
A 2.10/B 2.10	A 2.11/B 2.11
Error code	Current output of Media 6 is set to ≤ 3.6 mA.
A2.11/B2.11	V3.02
LCD	Use the  and  keys to switch the LCD on or off ("LCD ON" or "LCD OFF").
Gas and medium code	Gas and medium code with up to 8 characters
Error code	Error code changed. Changed response when confirming errors. Device errors are logged in error history (refer to page 27).
Operating mode	New operating modes: counting flow rate; differential pressure
Units for flow rate	Flow rate displayed in .../h or .../min
Units for static pressure (PTANK)	The following units were added: mbar, bar, kPa, psi, mmH ₂ O, cmH ₂ O, mH ₂ O, inH ₂ O.
DPO value	Pressure for 4 mA signal
Display "LOAD"	Replaced by display of version no. "V3.02"
V3.02	V3.03
Display mode	"Counting flow rate" operating mode: Standard display shows meter reading.
V3.03	V3.04
Digital potentiometer	Temperature control in LCD modified
V3.04	V3.10/index 02
Battery operation	New supply voltage: Battery operation
Operating mode	New operating mode: liquid level measurement in transportation vehicle
Boot loader	Firmware update

[illegible]

1 Design and principle of operation

The Media 6 Differential Pressure Meters are used to measure and indicate differential pressure as well as derived measured variables for gases and liquids.

Measuring functions

- Liquid level measurement in stationary pressure vessels and in pressure vessels on transportation vehicle, particularly suitable for cryogenic liquefied gases (e.g. argon, oxygen or nitrogen)
- Differential pressure measurement between flow and return flow pipe
- Pressure drop measurement on valves and filters
- Flow rate measurement based on differential pressure method

The device consists of the dp cell with measuring diaphragm, measuring springs that match the measuring range as well as the indicating unit equipped with an LCD to indicate certain operating states. The supply voltage U_B is 12 to 36 V DC. Optional: battery operation ¹⁾ with 9 V DC, without 4 to 20 mA output signal.

The differential pressure $\Delta p = p_1 - p_2$ generates a force on the measuring diaphragm (1.1), which is balanced by the measuring springs (1.2). The movement of the measuring diaphragm and lever (1.3), which is proportional to the differential pressure, is led out of the pressure chamber over the elastic disc (1.4) and converted into an electric signal by the travel sensor (2).

Evaluating the data saved in the FRAM (4), the electric signal is processed by a microprocessor (3). The microprocessor controls both the display (7) and D/A converter (9) for the

output signal, which is issued as a 4 to 20 mA two-wire transmitter signal at connector A.

The serial interface (10) allows the device to be configured with the help of SAMSON's TROVIS-VIEW Configuration and Operator Interface using a special memory pen or a cable connection to a PC.

The user-specific data are saved in the memory (FRAM) (4) until they are overwritten again. Data can also be backed up. As a result, the operating data can easily be exchanged on site between Media 6 and the memory pen, and vice versa.

The memory pen can be programmed using a PC and SAMSON's TROVIS-VIEW software.

The operating data allow the differential pressure to be converted into values proportional to the tank capacity or flow rate ²⁾; these values are displayed or issued as a 4 to 20 mA DC signal.

Using the DIP switches (6), four saved gas types and different write protection functions for saved data can be selected.

Three operating keys (5) are used to adjust different operating functions (zero and span adjustment, filling limit during operation, limit switch and test function settings etc.) as well as set different operating states (load or save operating values).

¹⁾ Only for liquid level measurement

²⁾ Count pulses in Media 6 Z

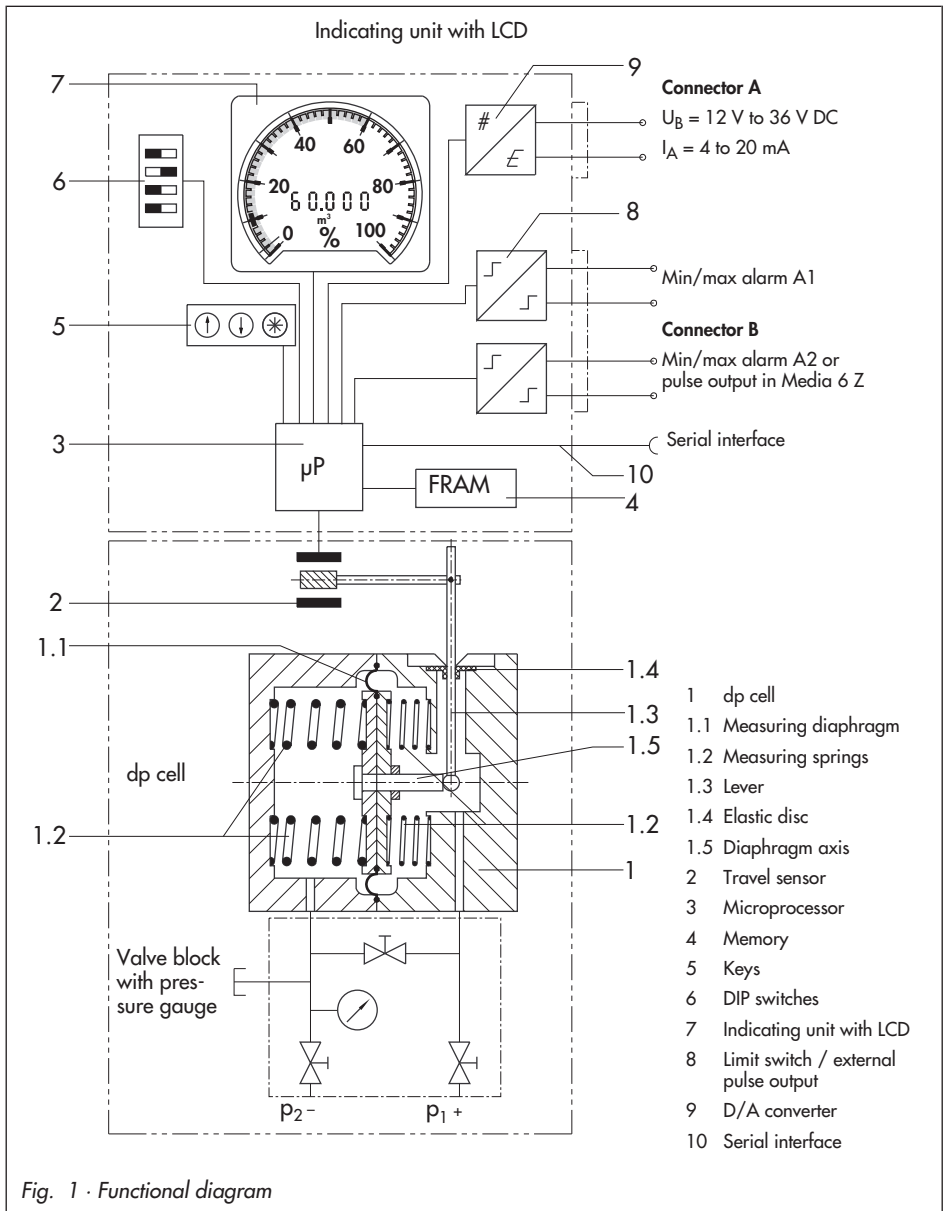


Fig. 1 · Functional diagram

1.1 Technical data

Table 2 · Technical data

Differential pressure meter										
Measuring range	mbar	0 to 100	0 to 160	0 to 250	0 to 400	0 to 600	0 to 1000 ¹⁾	0 to 1600 ¹⁾	0 to 2500 ¹⁾	0 to 3600 ¹⁾
Adjustable span in mbar										
Class ±1.0 %	from to			≤250 ≥125	≤400 ≥100	≤600 ≥150	≤1000 ≥250	≤1600 ≥320	≤2500 ≥500	≤3600 ≥720
Class ±1.6 %	from to	≤100 ≥60	<160 ≥60	<125 ≥50	<100 ≥80	<150 ≥120	<250 ≥200			
Class ±2.5 %	from to	<60 ≥35 ²⁾	<60 ≥32							
Nominal pressure	PN 50, can be overloaded up to 50 bar on one side									
Display	LCD Ø 90									
Characteristic	Output and display either linear or root-extracting depending on operating mode									
Deviation from terminal-based conformity	< ±1.0 % or < ±2.5 % (including hysteresis) depending on selected span									
Sensitivity	< 0.25 % or < ±0.5 % depending on selected span									
Influence of static pressure	< 0.03 % / 1 bar									
Influence of ambient temperature between -20 and +70 °C	< ±0.2 %/10 K on zero < ±0.2 %/10 K on span									
Limit switches	Two configurable software limit switches or one software limit switch complying with EN 60947-5-6 and pulse output ³⁾									
Control circuit, adjustable in steps of 1 %	Values correspond to connected switching amplifier according to EN 60947-5-6, e.g. KFA6- SR2- Ex2.W or KFA-SR2- Ex1.W									
Switching accuracy	1 % relating to MCN or SCN ⁴⁾									
Dead band, approx.	< 0.6 %									
Pulse output (Media 6 Z)	Max. possible count frequency 120 pulses/min or 7200 pulses/h ⁵⁾ floating transistor contact for connection of external counter									
Input voltage U _{DC}	50 V									
Input current I _{DC}	80 mA									
Residual current I _{off} at 24 V	< 0.1 mA									
Voltage drop at 10 mA	< 3.5 V									
Voltage drop at 80 mA	< 4.8 V									
Pulse length T _{on}	200 ms									

Technical data (continued)

Version	5006-...0	5006-...1
Two-wire connection	4 to 20 mA output	
Permissible load R _B in Ohm	R _B = $\frac{U_B - 12 \text{ V}}{0.020 \text{ A}}$	
Output circuit	–	Intrinsic safety according to PTB 00 ATEX 2074 (see certificates)
Supply voltage U _B for two-wire transmitter	12 to 36 V DC	12 to 28 V DC (in combination with intrinsically safe power circuit only)
Permissible ambient temperature	–40 °C to +70 °C	T6; –20 to +60 °C T5; –20 to +70 °C
Permissible storage temperature	–40 °C to +80 °C	
Battery operation ⁶⁾		
Supply voltage	9 V DC (six 1.5 V LR6 alkaline batteries)	
Use of Media 6 with gaseous oxygen max. temperature max. oxygen pressure	60 °C 30 bar	
Degree of protection DIN VDE 0470	IP 65	
Weight	Approx. 3 kg without valve block · Approx. 5 kg with valve block	
Materials		
Housing	CW617N (brass) or CrNi steel	
Measuring diaphragm and seals	ECO, NBR, FPM, EPDM	
Measuring springs	CrNi steel	
Diaphragm discs and functional parts		
Lever		
Indicating unit	Polycarbonate	

All pressures as gauge pressures · All errors and deviations in % of adjusted span

- 1) Class accuracy of 0.6 % can be assumed in measuring ranges 1000, 1600, 2500 and 3600 mbar for spans of ≤ 100 % to ≥ 50 % of the nominal range
- 2) If the values remain below this span, the class accuracy of Class 2.5 may be exceeded
- 3) Media 6 Z is equipped with one software switch A1 according to EN 60947-5-6 and one pulse output
- 4) MCN = Max. Capacity Nominal (max. tank capacity); SCN = Save Capacity Nominal (capacity up to overflow)
- 5) Determined flow rate is as follows: $Q = \frac{\text{Difference of counts within reading period}}{\text{Pulses / h}} \times Q_{\max}$
- 6) Battery operation is only possible with liquid level measurement and liquid level measurement in transportation vehicle.

WARNING!

Media 6 is **not approved** for measuring flammable gases and liquids in Zone 0!

Devices intended to measure gaseous oxygen are labeled

Oxygen! Keep free of oil and grease!



The manufacturer has cleaned and assembled all devices for oxygen service under special conditions. When replacing parts that come into contact with gaseous oxygen, e.g. measuring springs, wear appropriate gloves and make sure that the parts do not get into contact with oil or grease. When returning devices for oxygen service for repair, the sender assumes full responsibility that the devices are handled to meet all requirements stipulated by VBG 62 or similar regulations until they are handed over to the manufacturer. Otherwise, SAMSON AG does not accept any responsibility.

2 Installation

2.1 Arrangement of devices for liquid level measurement

Schematic drawings 1 to 3 (see Fig. 2)

In arrangements as illustrated by schematic drawing 2, the additional height z influences the measurement. As a result, the height must be as low as possible.

No restrictions apply to dimension K (compensation height) illustrated in schematic drawing 3; it can be as high as required by the conditions in the plant.

2.1.1 Arrangement of devices for flow rate measurement

The decision whether the meter is to be mounted above or below the measuring point or whether equalizing tanks are required depends on the type of process medium and the specific conditions in the plant. The installation drawing shows standard and reverse installation. Standard installation is preferable

in any case. Reverse installation can be used only when there is no other possibility, particularly for steam measurements. Refer to VDE/VDI 3512 Sheet 1 for details.

2.2 Media 6 indicating unit

Make sure that the high-pressure line is connected to the high-pressure connection and that the low-pressure line is attached to the low-pressure connection.

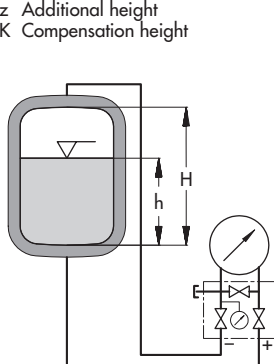
Special fittings are required to connect the differential pressure lines. Depending on the device arrangement, seal any connections left unused with plugs or vent plugs.

Carefully clean the connections before attaching the differential pressure lines. Never flush the device with compressed air or pressurized water!

Liquid level measurement

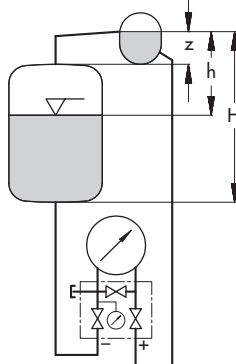
H Measuring range
h Measured height
z Additional height
K Compensation height

Illustration with SAMSON valve block



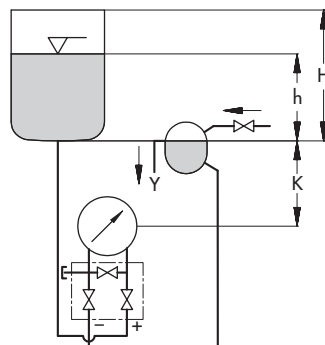
Schematic drawing 1

Measurements in cryogenic systems (liquefied gases)



Schematic drawing 2

Measurements on pressure vessels with condensing or non-condensing cushion



Schematic drawing 3

Measurements on open vessels with low-lying meter

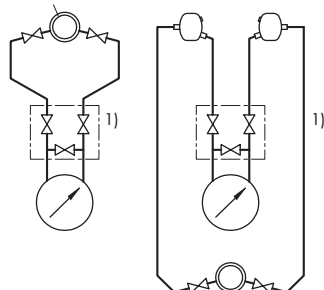
Flow rate measurement

Measuring liquids

Measuring steam

Measuring gases

Orifice plate assembly

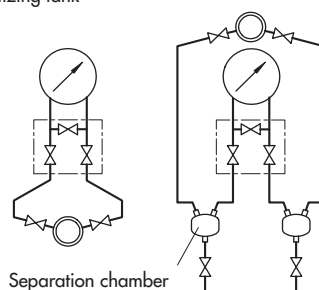


Installation:
Standard

Reverse

Standard

Equalizing tank



Separation chamber

Standard

Reverse

¹⁾ SAMSON valve blocks can be installed above the dp cell to match connections (+) to (+) and (-) to (-).

Fig. 2 · Arrangement of devices

At the place of installation, mount the meter to a pipe, wall or mounting plate, ensuring that it is **free of vibration**.

Use the fastening element with clamp for mounting to vertical or horizontal pipes. For wall mounting, use the fastening element without clamp. A mounting bracket (see dimensional drawing on page 35) is required for panel mounting.

2.3 Differential pressure lines

Install the differential pressure lines (pipes with 12 mm outside Ø) as illustrated in Fig. 3. Observe the proper arrangement! Use appropriate screw fittings to ensure that the lines do not leak.

Install line sections, which would usually run horizontally, with a constant downward slope of at least 1:20, starting the slope either at the orifice plate or at the point where venting is possible. The smallest permissible bending radius is 50 mm.

Thoroughly flush the differential pressure lines before connecting them to the device. Make sure that the high-pressure line is connected to the high-pressure connection and that the low-pressure line is attached to the low-pressure connection.

2.4 Orifice plate assembly

The direction of flow must match the arrow. Unobstructed pipe sections are required upstream and downstream of the orifice plate assembly. For the orifice tubes delivered by SAMSON, these sections are ensured by the weld-on calibration pipes. For orifice flanges, the unobstructed pipe section upstream of the orifice plate is specified in the order confirmation. Make sure the orifice plate assembly as well as the seals are properly aligned with the pipeline.

Do not install any control valves that constantly change the operating state of the process medium (e.g. manually operated control

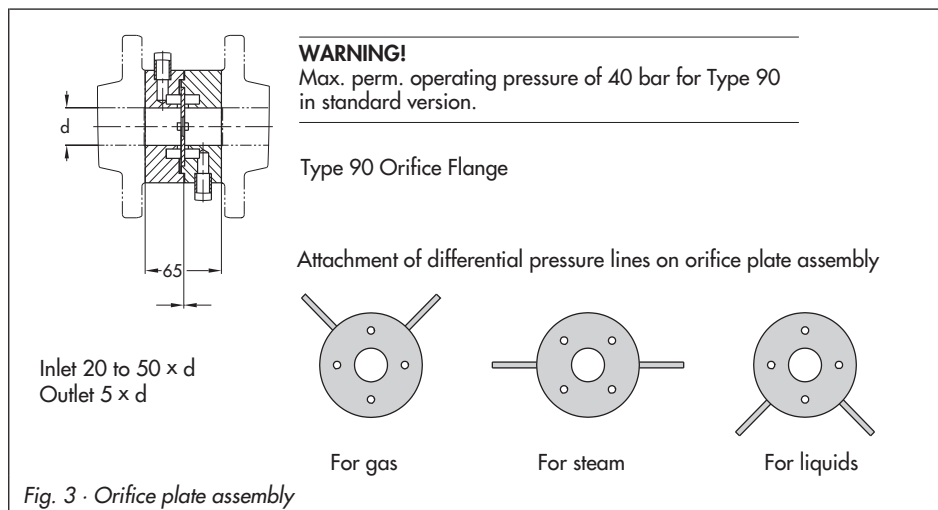


Fig. 3 · Orifice plate assembly

valves or temperature regulators) upstream of the orifice plate assembly. The operating state should match the conditions calculated during sizing as closely as possible. It is, however, favorable to install equipment that keeps the operating state constant (e.g. pressure regulators) upstream of the assembly.

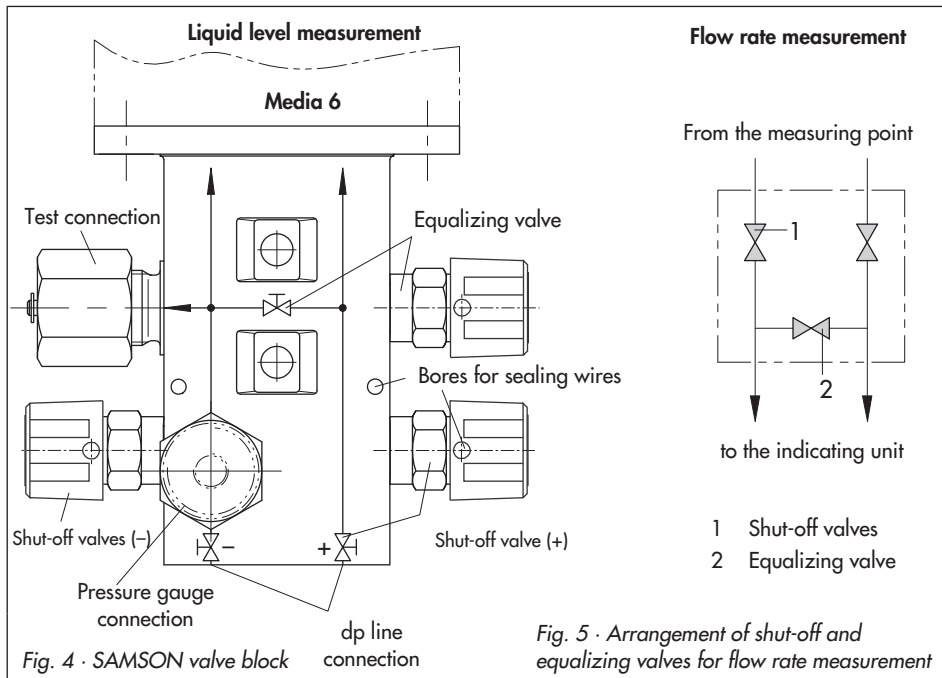
2.4.1 Accessories

We recommend to install a shut-off valve as well as an equalizing valve in the differential pressure lines. They can be used to shut off both differential pressure lines and to bypass the indicating unit when checking zero.

2.4.2 Valve block

SAMSON offers a valve block composed of three valves (see Fig. 4) as accessory equipment. The valve block is flanged directly to the bottom of the dp cell.

When measuring the flow rate in liquids and gases, the SAMSON valve block can also be mounted above the dp cell, so that the connection arrangement of (+) to (+) and (-) to (-) can be maintained. Due to this reverse installation, the pressure gauge connection can no longer be used and is to be sealed with an O-ring and a G 1/2 - LH screw cap.



2.4.3 Shut-off and equalizing valves

As an alternative to the SAMSON valve block, the two shut-off valves as well as the bypass valve/equalizing valve can also be installed as illustrated in Fig. 5.

2.4.4 Equalizing tanks

Equalizing tanks that establish a constant liquid column are required when measuring steam.

When measuring liquids, they are only needed when the indicating unit is mounted above the measuring point.

For gas measurements, they are required as chambers for condensate separation when the indicating unit is installed below the measuring point.

2.4.5 Accessories for connection

The meters are delivered without screw fittings (oxygen versions are protected against contamination by four NBR blanking plugs). Required screw fittings, sealing or vent screws as well as screw joints with restrictions to dampen medium-induced vibration (particularly for measuring gases) must be ordered separately.

Note!

The screw fittings and SAMSON valve blocks with their associated order numbers are listed in Data Sheet T 9555 EN.

3 Electrical connection



DANGER!

- ▶ For electrical installation, you are required to observe the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. In Germany, these are the VDE regulations and the accident prevention regulations of the employers' liability insurance.
- ▶ The following regulations apply for installation in hazardous areas: EN 60079-14: 2008 (VDE 0165 Part 1) **Explosive atmospheres – Part 14: Electrical installations design, selection and erection** and EN 50281-1-2: (VDE 0165 Part 2: 1999) **Electrical apparatus for use in the presence of combustible dust**.
- ▶ For intrinsically safe electrical equipment approved in accordance with Directive 79/196/EEC, the data specified in the certificate of conformity apply for the connection of intrinsically safe circuits.
- ▶ For intrinsically safe electrical equipment approved in accordance with Directive 94/9/EC, the data specified in the EC type examination certificate apply for the connection of intrinsically safe circuits.
- ▶ **WARNING!**
The terminal assignment specified in the certificate must be adhered to! Switching the assignment of the electrical terminals may cause the explosion protection to become ineffective! Do not loosen enameled screws in or on the housing.
- ▶ In **hazardous areas**, use only meters approved in accordance with **ATEX** to check the current on the test connection (Test – +), see Fig. 10.
- ▶ The serial interface (see Fig. 10) is **not approved** for use in hazardous areas. As a result, use only the intrinsically safe **SAMSON memory pen** to transfer data.

Note on the selection of cables and wires

To run several intrinsically safe circuits in one multi-core cable, observe clause 12 of EN 60079-14: 2008. Note especially that, for commonly used insulating materials (e.g. polyethylene), the radial thickness of the conductor insulation must be at least 0.2 mm. The diameter of a single wire of a flexible conductor must not be smaller than 0.1 mm. The conductor ends must be protected against unlaying, e.g. by using wire-end ferrules.

When two separate cables are used for connection, an additional cable gland can be installed. Cable entries left unused must be sealed with plugs.

Devices used in ambient temperatures down to –20 °C are to be fitted with metal cable entries.

3.1 Connectors

Connector A · Supply voltage

The same pair of conductors transmit the 4 to 20 mA measuring signal and the required supply voltage ($U_B = 12$ to 36 V) for the two-wire transmitter.

A four-pin connector (according to DIN 43650, form A) is used for connection to the Media 6 meter.

Two-wire connection for 4 to 20 mA signal.
Permissible load R_B :

$$R_B = \frac{U_B - 12 \text{ V}}{0.020 \text{ A}} \text{ Ohm}$$

Normally, the supply voltage U_B is 24 V DC. Taking into account the supply conductor resistance directly at the terminals of the device connector, the supply voltage may be between 12 V and 36 V DC.

Optional: Battery operation · 9 V DC supply voltage

Connector B · Limit switches/pulse output

Connection of two software limit switches in type of protection EEx ia IIC for control circuits according to NAMUR on switching amplifier according to EN 60947-5-6

Maximum values:

$$U_i = 20 \text{ V}, \quad I_i = 60 \text{ mA}, \quad P_i = 250 \text{ mW}$$

$$C_i = 5.3 \text{ nF}, \quad L_i = 8 \text{ } \mu\text{H}$$

Media 6 Z includes only one software limit switch (Alarm 1) and one pulse output (at position Alarm 2/contacts 3 and 4), which is proportional to the tank capacity, to control an external counter.

Test connection (see also section 9)

Connect an ammeter to the test terminals + and - to test the output signal during calibration. While doing so, the output signal of the two-wire circuit is not interrupted. Make sure the ammeter provides a load of < 0.4 V DC for the test connection.

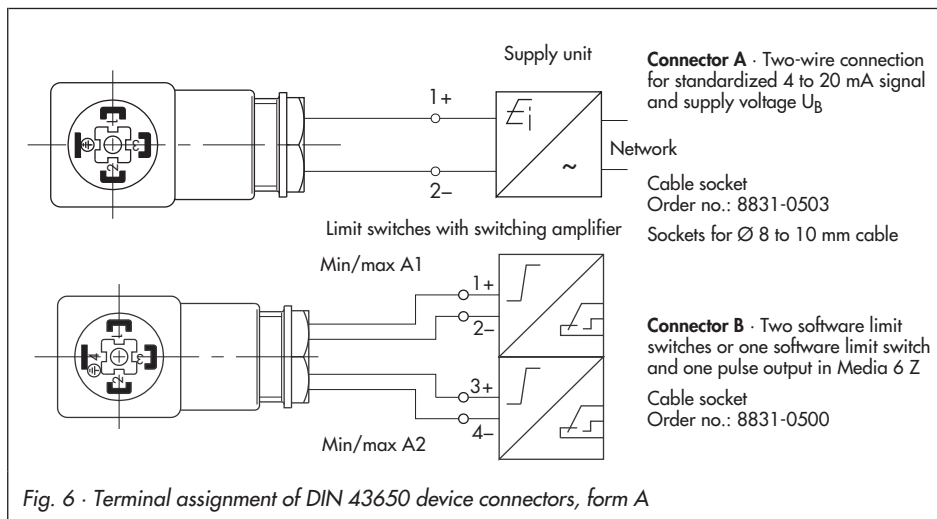


Fig. 6 · Terminal assignment of DIN 43650 device connectors, form A

CAUTION!

Degree of protection IP 65 becomes ineffective when the cable socket is removed from the device connector!

Protect the device connector against moisture during installation and transport by keeping the cable socket part screwed on and sealed.

Table 3 · Overview of functions for software limit switches A1 and A2 at connector B

Proximity switch for ...	1 min/1 max contact (gas tapping / tank filling)		2 min contacts (gas tapping)		2 max contacts (tank filling)	
	A1	A2	A1	A2	A1	A2
Alarm contact	A1	A2	A1	A2	A1	A2
Value falls below limit	High resistance	Low resistance	High resistance	High resistance	Low resistance	Low resistance
Value exceeds limit	Low resistance	High resistance	Low resistance	Low resistance	High resistance	High resistance

The limit switches A1 and A2 can be separately configured to function as min or max alarms.

Note!

Both limit switch outputs A1 and A2 are deactivated during battery operation.

Low-resistance contact

Switching signal **"ON"** · Function: contact closed or output effectively conducting, power consumption ≥ 3 mA

High-resistance contact

Switching signal **"OFF"** · Function: contact open or output effectively non-conducting, power consumption ≤ 1 mA

4 Operation

4.1 Display and operating elements

All necessary data and measured values saved in the memory of Media 6 are indicated on the LCD.

The operating elements are located on the bottom panel behind the protective cover, which can be opened:

⬆ Up key


⬇ Down key

⊗ Enter key

Apart from that, four DIP switches to select the gas type and write protection functions (also see page 24) are included.

Further details on the display and operating elements can be found on page 43.

4.1.1 Switching display mode

Depending on the operating mode, each pressing of the  key allows you to switch between the standard display and up to eight other parameters.

After eight seconds or after the marquee has finished scrolling, the display automatically returns to the default display.

GKZ	Standard mode (e.g. gas code – O ₂ – and current tank content)
ΔP	Current differential pressure
MCN	Max. capacity nominal (max. tank capacity)
MCN/R	100 % tank volume or max. possible flow rate, set to 20 mA signal
SCN	Save capacity nominal. Geometric tank volume up to overflow/gauge pipe
SCN/R	100 % tank volume set to 20 mA signal
UCW	Usable capacity work (filling level during operation)
ΔP100	Max. differential pressure
ΔP0	Min. differential pressure
PTANK	Nominal tank pressure. Value corresponds to the pressure assigned to the density (liquid) according to the vapor pressure graph. If MCN and SCN are calculated on the basis of 1 bar, "1 bar" is displayed for PTANK .
TKZ	Tank identifier
FLOW	Flow rate
ERROR	Error code; automatically displayed when an error occurs (see section 8)
OFF	Special signal when opening the equalizing valve, I = 3.6 mA
LOWBAT	Special signal while in battery mode

Table 4 · Operating mode

Operating mode >		Liquid level measurement ¹⁾	Flow rate measurement	Counting flow rate	Differential pressure measurement
Standard display	Standard mode	GKZ	GKZ	GKZ	GKZ
	Displayed values	Liquid level	Flow rate	Meter reading	Diff. pressure
Further display modes	1	ΔP	ΔP	FLOW	ΔP0
	2	MCN (/R)	MCN (/R)	ΔP	ΔP100
	3	SCN (/R)	ΔP100	MCN (/R)	PTANK
	4	UCW	PTANK	ΔP100	TKZ
	5	ΔP0	TKZ	PTANK	
	6	ΔP100		TKZ	
	7	PTank			
	8	TKZ			

¹⁾ Also for liquid level measurement in transportation vehicle

5 Start-up

- For start-up observe Figs. 4 and 5 on page 15.

Initial position of the valves on the valve block upon delivery:

- High-pressure shut-off valve (+) and low-pressure shut-off valve (–) open.
- Equalizing valve closed.

CAUTION!

In cryogenic applications, the process medium circulates when the equalizing valve is open, causing the valve block to freeze over.

Note!

If necessary, check zero at the dp cell (see section 6.3) and put the device back into operation.

Note!

In measuring operation, make absolutely sure that the equalizing valve is closed and the shut-off valves are open.

5.1 Liquid level measurement

1. **Open** low-pressure line by slow turning.
2. **Close** equalizing valve or bypass of the valve block.
3. **Open** high-pressure line by slow turning.

5.2 Flow rate measurement

When measuring steam

Make sure that the steam does not have direct contact with the measuring diaphragm of the device. As a result, screw off the differential pressure lines below the shut-off valves or valve block and fill the device with water. Alternatively, make sure the shut-off and equalizing valves or valve block are shut off and wait approx. 20 min after the system was started up (steam in system) until condensate has collected in the differential pressure lines above the valve and up to the orifice plate.

1. Slowly **open** high-pressure line.
2. **Close** equalizing valve or bypass of the valve block.
3. **Open** low-pressure line.
4. Wait a little. Open both vent screws of the dp cell one after the other until the escaping condensate is bubble free. Retighten the screws.

Vent the equalizing tanks in the same way. Slightly tapping the housing of the indicating unit or the equalizing tanks helps the air escape.
5. Check zero (see section 6.3) and put the device back into operation.

Note!

When using reverse installation, i.e. with the meter mounted above the measuring point, the differential pressure lines may partly get drained when depressurizing the system.

When starting up the system again, vent the arranged measuring system, allowing it to fill with condensate.

5.3 Draining

When measuring gas, drain condensed water from the equalizing tanks from time to time.

WARNING!

Close valves in the differential pressure lines (valve block) before opening the drain plugs.

When measuring liquids

1. **Open** high-pressure line by slow turning.
2. **Close** equalizing valve or bypass of the valve block.
3. **Open** low-pressure line.
4. Loosen vent screw on the dp cell and retighten it when the air has escaped.
5. Check zero (see section 6.3) and put the device back into operation.

6 Adjustment

6.1 Write protection

The device includes two write-protection functions:

WRITE PROTECTION to prevent that operating data are changed unintentionally.

SPAN PROTECTION as additional write protection for the span settings.

To perform certain operating functions, deactivate the write protection on switch 4 (position **OFF**). Remember to reactivate write protection when the operating functions have been completed (position **ON**).

6.2 Selecting gas type

Select the desired type of gas according to the positions for switches 1 and 2 as given in Fig. 7 and the table below.

Gas 1	1	OFF	2	OFF
Gas 2	1	ON	2	OFF
Gas 3	1	OFF	2	ON
Gas 4	1	ON	2	ON

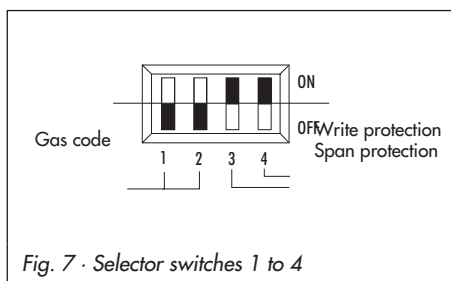


Fig. 7 · Selector switches 1 to 4

The gas code for the selected gas (e.g. **AR**, **CO₂**, **O₂**, **N₂** etc.) is indicated on the display.

- Adjust gas type on the DIP switches as indicated in the table.

The display is not active; only the selected gas is displayed.

Press  key to confirm your selection.

The new gas code as well as the display are activated.

Note!

In operating modes "Flow rate", "Differential pressure" and "Counting flow rate" (Media 6 Z), only one gas or medium code is available.

6.3 Checking zero

To check zero at atmospheric pressure, make sure that the pressures in both measuring chambers are identical. This means that, with a differential pressure of $\Delta p = 0$ mbar, the current signal at connector **A** or at the **TEST** terminals must be 4 mA (see test arrangement, Fig. 8).

WARNING!

*In **hazardous areas**, use an ammeter approved in accordance with **ATEX** to measure the current at the test connection (TEST).*

Note!

When gas column correction is selected (see also EB 9527-2 EN, section "Gas data"), observe that the gas columns in the measuring lines reduce the differential pressure because they act in the opposite direction. When the pressures are identical ($\Delta p = 0$ mbar), Media 6 indicates a negative value for the content. The value of the output signal is <4 mA. In this case, readjust zero as described below so that the display shows 0 % = 0000 at $\Delta p = 0$ mbar. The value of the output signal will change but remain below 4 mA due to the adjusted gas column correction.

At $\Delta p = 0$ mbar, the display must indicate 0 %, i.e. **0000**.

Correction when tank is empty

- ▶ Deactivate write protection by setting switch **4** to position **OFF**.
- ▶ Press and hold \downarrow key until **ZERO** and **X, X** mbar are displayed. Current signal I indicates current value in mA.
- ▶ Press \otimes key to calibrate zero.
- ▶ Release \downarrow key. Display shows 0 mbar, current signal I = 4 mA.

- ▶ Reactivate write protection by setting switch **4** to position **ON**.

Correction when tank is filled

Zero can also be checked while the system is running, provided the differential pressure lines are equipped with shut-off and equalizing valves. To do so, move the valve block or equalizing valve to test position, balancing the pressures in both measuring chambers.

1. **Close** shut-off valve in high-pressure line.
2. **Open** equalizing valve or bypass of valve block.
3. **Close** shut-off valve in low-pressure line.

Valve block is in test position now.

- ▶ Deactivate write protection by setting switch **4** to position **OFF**.
- ▶ Press and hold \downarrow key until **ZERO** and **X, X** mbar are displayed. Current signal I indicates current value in mA.
- ▶ Press \otimes key to calibrate zero.
- ▶ Release \downarrow key. Display shows 0 mbar, current signal I = 4 mA corresponding to filling level at 0 mbar differential pressure (see also note on the left on gas column correction).
- ▶ Reactivate write protection by setting switch **4** to position **ON**.
- ▶ Put valve block or equalizing valve back into operating position:

 1. **Open** shut-off valve in low-pressure line.
 2. **Close** equalizing valve.
 3. **Open** shut-off valve in high-pressure line.

WARNING! For devices in **oxygen service**, make absolutely sure that the test medium is **free of oil and grease**.

Gaseous oxygen as the process medium · Max. temperature: 60 °C, max. oxygen pressure: 30 bar
*When the device is used for oxygen service, make sure that the dp cell and any accessories only come into contact with **gaseous** oxygen.*

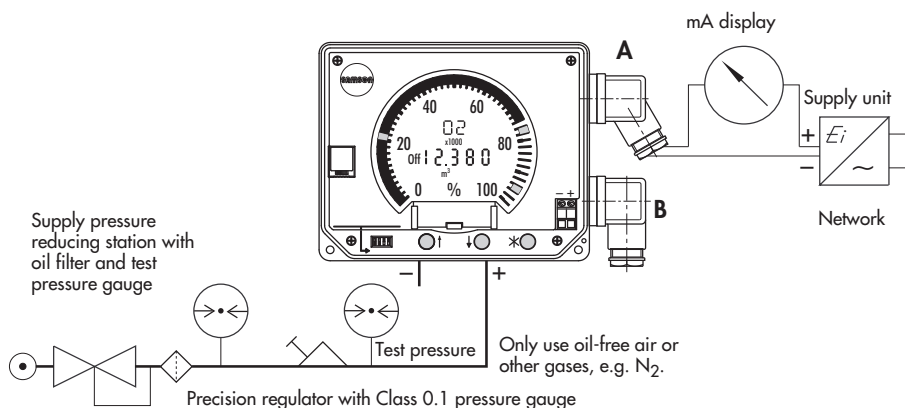


Fig. 8 · Test arrangement

6.4 Checking the measuring range (span)

By default, the device has been calibrated with a linear characteristic based on the upper measuring range value of the dp cell.

By later entering the tank and gas data, the device adopts the tank characteristic; based on the gas data for the activated type of gas, the device calculates values for the display and output signal (4 to 20 mA) that are proportional to the tank content.

In the same way, the differential pressure meter calculates the max. possible differential pressure Δp_{100} in **mbar** for the type of gas and the predefined reference height (total height or gauge pipe).

At Δp_{100} , the output signal must be 20 mA.

To check the span, connect the differential pressure meter as illustrated in Fig. 5.

Note!

When checking the span, it is recommendable to activate the gas with the highest density.

The values for gases with a lower density are calibrated during this process as well.

Note!

To calibrate the currently used gas, its display value must be at least 85 % of the adjusted upper measuring range value Δp_{100} .

Calibration of the span is subject to particular protection (switch **3**) to prevent the span from being changed unintentionally due to improper operation of the keys.

Checking the measuring range (span)

When the \otimes key is pressed five times in display mode, the value for the max. differential pressure Δp_{100} is indicated.

- ▶ Check zero as described in section 6.3.
- ▶ Press \otimes key five times. Display shows $\Delta p_{100} = X.XXX$ (x1000) mbar.
- ▶ Use a precision regulator to apply a test pressure corresponding to the max. differential pressure Δp_{100} while monitoring the pressure gauge.

Set points: $\Delta p = 0$ mbar = 4 mA (see also note on gas column correction on page 25)

$$\Delta p_{100} = XXXX \text{ mbar} = 20 \text{ mA}$$

When display and output signal do not match the indicated Δp_{100} value, readjust the upper range value (span).

Adjusting the measuring range (span)

- ▶ Check zero as described in section 6.3.
- ▶ Deactivate write and span protection by setting both switch **4** and switch **3** to position **OFF**.
- ▶ Press \otimes key five times. Display shows: $\Delta p_{100} = X.XXX$ (x1000) mbar.
- ▶ Use a precision regulator to apply a test pressure corresponding to the max. differential pressure Δp_{100} while monitoring the pressure gauge.

- ▶ Press and hold $\textcircled{1}$ key until display shows currently measured value. Current signal I indicates current value in mA.
- ▶ Press \otimes key to calibrate the span. Current signal becomes 20 mA, display corresponds to Δp_{100} .
- ▶ Release $\textcircled{1}$ key. Reactivate write and span protection by setting switch **4** and switch **3** to position **ON**.

6.5 Setting the limit switches**6.5.1 Max. filling limit during operation****Note!**

The filling limit during operation preset by the software can be modified only in filling level mode using the operating keys.

UCW marker

- ▶ Deactivate write protection by setting switch **4** to position **OFF**.
- ▶ Press and hold \otimes key until, after approx. 8 s, **UCW** is shown at the top and the associated value in % at the bottom of the display.
- ▶ Press \otimes key to confirm display.
- ▶ Press $\textcircled{\downarrow}$ key to reduce value in steps of 1 %, or
- ▶ Press $\textcircled{\uparrow}$ key to increase it.
- ▶ Press \otimes key to confirm adjusted value.
- ▶ Reactivate write protection by setting switch **4** to position **ON**.

6.5.2 Alarm contacts A1 and A2

Alarm **A1** and **A2** markers

Note!

In counting flow rate mode (Media 6 Z), only alarm A1 is available.

Both limit switches are preset by the software to function as either min or max alarms. The display shows **A1MIN**, **A1MAX**, **A2MIN** or **A2MAX**. Both contacts are to be set and confirmed separately.

- ▶ Deactivate write protection by setting switch **4** to position **OFF**.
- ▶ Press and hold \otimes key until, after approx. 8 s, **UCW** is shown at the top of the display.
- ▶ Press \uparrow or \downarrow to switch between contacts **A1** and **A2**.
- ▶ Press \otimes key to confirm contact selection.
- ▶ Press \downarrow key to reduce value in steps of 1 %, or
- ▶ Press \uparrow key to increase it.
- ▶ Press \otimes key to confirm adjusted value.
- ▶ Press key again and hold it until, after approx. 8 s, **UCW** is shown at the top of the display.
- ▶ Press \uparrow or \downarrow to switch to the second contact.
- ▶ Confirm selection and set alarm contact as described above.
- ▶ Reactivate write protection by setting switch **4** to position **ON**.

6.6 Switching LCD ON/OFF

The LCD can be switched ON and OFF.

Press and hold \uparrow and \downarrow keys until, after approx. 3 s, the LCD is either switched ON or OFF.

6.7 Ammeter function

Note!

The ammeter function is not available while the meter is running on batteries.

To check the function of connected devices, an output signal of 4 or 20 mA or 22.8 mA can be adjusted for a short period regardless of the current filling level in the tank.

- ▶ Deactivate write protection by setting switch **4** to position **OFF**.

4 mA ammeter

- ▶ Press and hold \otimes key.
- ▶ Press \downarrow key within 8 s and hold it as well. Output signal = 4.0 mA
- ▶ Release \downarrow key to switch the signal between 4.0 mA and 22.8 mA.
- ▶ **Release** \otimes key. Current signal I returns to indicating the mA value corresponding to the tank content.

20 mA ammeter

- ▶ Press and hold \otimes key.
- ▶ Press \uparrow key within 8 s and hold it as well. Output signal = 20.0 mA
- ▶ Release \uparrow key to switch the signal between 20.0 mA and 22.8 mA.
- ▶ **Release** \otimes key. Current signal I returns to indicating the mA value corresponding to the tank content.
- ▶ Reactivate write protection by setting switch **4** to position **ON**.

6.8 Battery operation

The SAMSON battery supply unit ¹⁾ can be connected to connector A for supply over batteries.

9 V DC is supplied by six 1.5 V LR6 batteries.

The BAT-MODE (battery mode) is only possible in the operating modes liquid level measurement and liquid level measurement in transportation vehicle. The 4 to 20 mA output and limit switches (A1/A2) are deactivated and the device is switched to the energy-saving mode (ESM).

Note!

Measuring cycles and readings in battery mode:

*Energy-saving mode (ESM): USW and SNC markers do **not** blink.*

Active operation: *USW and SNC markers blink.*








The following features apply to BAT-MODE:

Device in energy-saving mode (ESM) · 4 to 20 mA signal deactivated

- Measuring cycle: One measured value per minute
- Filling process: While the vessel is being filled, the display switches to active operation. It returns to **ESM mode** five minutes after the filling process has been completed.
- Bar graph: Blinking bar graph function deactivated
- Operation: The display switches back again to **ESM mode** 30 seconds after the meter is operated.

- A supply voltage lower than 6.6 V causes LOWBAT and the measured reading to be displayed.

Local operation

- ▶ Deactivate write protection by setting switch **4** to position **OFF**.
- ▶ Press and hold  key until, after approx. 8 s, **UCW** is shown at the top of the display.
- ▶ Press  or  to switch to BAT-MODE.
- ▶ Press  key to confirm selection.
- ▶ Press  or  key to select ON = 1 or OFF = 0
- ▶ Press  key to confirm setting.
- ▶ Reactivate write protection by setting switch **4** to position **ON**.

7 Communication using the memory pen

WARNING!

When exchanging data in **hazardous areas**, **only** the intrinsically safe SAMSON memory pen may be used for connection to the serial interface.

7.1 Exchanging data using the memory pen

As a handy storage device, the memory pen allows standardized data records corresponding to the tank type and associated gas data to be transferred to Media 6 devices on site without requiring a PC/notebook PC simply by plugging the pen into the serial RS-232 interface.

A label tag can be attached to the memory pen for identification.

The user-specific data are transferred to the memory pen either using the TROVIS-VIEW Configuration and Operator Interface and a PC/notebook PC (see EB 9527-2 EN) or copied from a configured Media 6 device.

Depending on the status set in TROVIS-VIEW, the memory pen can be used to read and write, read only or write only (see Table 5).

Note!

Memory pens with data records or existing configurations for previous Media 6 versions up to firmware version 2.11 are fully compatible with Media 6 devices with firmware version V3.00 and higher.

Such records or configurations do not need to be loaded into TROVIS-VIEW for conversion any longer.

Exchanging data between Media 6 and the memory pen, "read and write" status

- Plug memory pen into serial interface.

MEMWR is indicated at the top of the display.




- Press  or  to switch between **MEMWR** = write data from Media 6 to the memory pen and **MEMRD** = read data from the memory pen into Media 6.
- For **MEMRD**: Deactivate write protection by setting switch **4** to position **OFF**.
- Press  key to activate selection. Display shows **RUN**. Data have been saved when **DONE** is displayed. Memory pen can now be removed.
- For **MEMRD**: Reactivate write protection by setting switch **4** to position **ON**.


Table 5 · Memory pen status

Memory pen status	Display	Process
Read and write	MEMRD or MEMWR	Read data from the memory pen into Media 6 or Write data from Media 6 to the memory pen
Read only	MEMRD	Read data from the memory pen into Media 6
Write only	MEMWR	Write data from Media 6 to the memory pen

Transfer data from the memory pen to Media 6, "read only" status

- ▶ Deactivate write protection by setting switch **4** to position **OFF**.
- ▶ Plug memory pen into serial interface.



MEMRD is indicated at the top of the display.

- ▶ Press  key to start reading data.
- ▶ Display shows **RUN**. Data have been saved to Media 6 when **DONE** is displayed. Memory pen can now be removed.
- ▶ Reactivate write protection by setting switch **4** to position **ON**.

Transfer data from Media 6 to the memory pen, "write only" status

- ▶ Plug memory pen into serial interface.

MEMWR is indicated at the top of the display.

- ▶ Press  key to start writing.
- ▶ Press  key. Display shows **RUN**. Data have been saved to the memory pen when **DONE** is displayed. Memory pen can now be removed.

7.2 Communication using a PC

Media 6 can also be operated using a PC/notebook PC connected to the serial interface and the TROVIS-VIEW Configuration and Operator Interface.

For details refer to Mounting and Operating Instructions **EB 9527-2 EN**.

WARNING!

*The serial interface is not approved for use in **hazardous areas**. Do **not connect** a PC/notebook PC to the serial interface inside hazardous areas.*


Refer to section x on page x.

8 Troubleshooting

Errors on the LCD by the word **ERROR** written at the top and the associated error code (e.g. **16**) being shown at the bottom of the display.

Refer to table 6 for descriptions of the error codes.

Press  key to reset or confirm errors.

Depending on the error class, Media 6 responds differently when the  key is pressed:

Class E1: Device is restarted.

Class E2: Error is suppressed for 8 s.

Class E3: Error is reset.

Class E4: Error is reset.

All errors in Classes E1 to E3 are logged in an error history and can be read or viewed in TROVIS-VIEW (version V3.11 and higher).

Errors are not saved; only the current error switches the device to error mode.

For errors in Classes E1 and E2, the signal current is set to ≤ 3.6 mA.


Table 6 · Error codes

Error code	Description	Class
1	Oscillating circuit of differential inductor failed	E1
2	Checksum error RAM	E1
4	Checksum error FRAM	E1
8	Span outside permissible range	E2
16	Error in tank characteristic	E2
32	Δp sensor calibration	E2
128	Invalid memory pen	E4
256	Checksum error memory pen	E4
512	Communication error memory pen	E4
4096	Internal communication error	E1
8192	No default calibration available	E1
16384	No LCD available	E3
32768	Crystal oscillator failed	E3

Note!

Error codes can also be added up and displayed as a sum of codes, e.g. FC 8 and FC 16 -> ERROR 24

Calibration error (error code 32)


After the error was confirmed by pressing the  key, you have 8 s until the error is indicated again. Recalibrate the device within this period.

Span error (error code 8) or error in tank characteristic (error code 16)**Troubleshooting using memory pen**

If available, use a SAMSON memory pen to transfer new data to the device while the error is suppressed (approx. 8 s).

Troubleshooting using PC or notebook PC connected over connecting cable

Communication using a PC or notebook PC and the serial interface also functions in error mode.


As mentioned above, you have approx. 8 s after the error was confirmed by pressing the  key until the error is indicated again.

When communicating with a connected PC or notebook PC, the device is reset by copying data.

Note!

Using TROVIS-VIEW, an error status can be reset directly in the "Maintenance" menu.

Other errors

Such errors need to be confirmed. To do so, press the  key so that the device can continue normal operation or perform a restart.

9 Servicing explosion-protected devices

If a part of Media 6 on which the explosion protection is based needs to be serviced, the device must not be put back into operation until an expert has inspected it according to explosion protection requirements, has issued a certificate stating this or given the device a mark of conformity.

Inspection by an expert is not required if the manufacturer performs a routine test on the device prior to putting it back into operation. The passing of the routine test must be documented by attaching a mark of conformity to the device.

Explosion-protected components may only be replaced by original, routine-tested components from the manufacturer.

Devices that have already been used outside hazardous areas and are intended for future use inside hazardous areas must comply with the safety requirements placed on repaired devices. Before being used inside hazardous areas, the devices must be tested according to the specifications stipulated in EN 60079 (Explosive atmospheres - Part 17: Electrical installations inspection and maintenance) for servicing explosion-protected devices.

9.1 Firmware update

Firmware updates on differential pressure meters currently in operation can be performed as follows:

When updates are performed by a service employee appointed by SAMSON, the update is confirmed on the device by the test mark assigned by SAMSON's Quality Assurance.

In all other cases, only persons from the plant operator with written approval may perform updates. This person must confirm the update on the device.

Laptops and PCs connected to the power supply must use an additional safety barrier.

This does not apply to laptops in battery operation. In this case, it is assumed that a battery-powered laptop runs briefly for software programming or for testing purposes.

Updates outside the hazardous area:

Remove the differential pressure meters from the plant and update them outside the hazardous area.

Updates on site:

Updates on site are only permitted after the plant operator has presented a signed hot work permit.

After updating has been completed, add the current firmware to the nameplate; this can be done using labels.

WARNING!

*In **hazardous areas**, use only meters approved in accordance with **ATEX** to check the current on the test connection (Test – +), see Fig. 10.*

*The **serial interface** (see Fig. 10) is **not approved** for use in hazardous areas. As a result, use only the intrinsically safe **SAMSON memory pen** to transfer data.*

9.2 Maintenance, calibration and work on equipment

The interconnection with intrinsically safe circuits to check or calibrate the apparatus must only be performed with intrinsically safe current/voltage calibrators and measuring instruments to rule out any damage to components relevant for explosion protection.

The maximum values for intrinsically safe circuits specified in the approvals must be kept.

10 Dimensions in mm

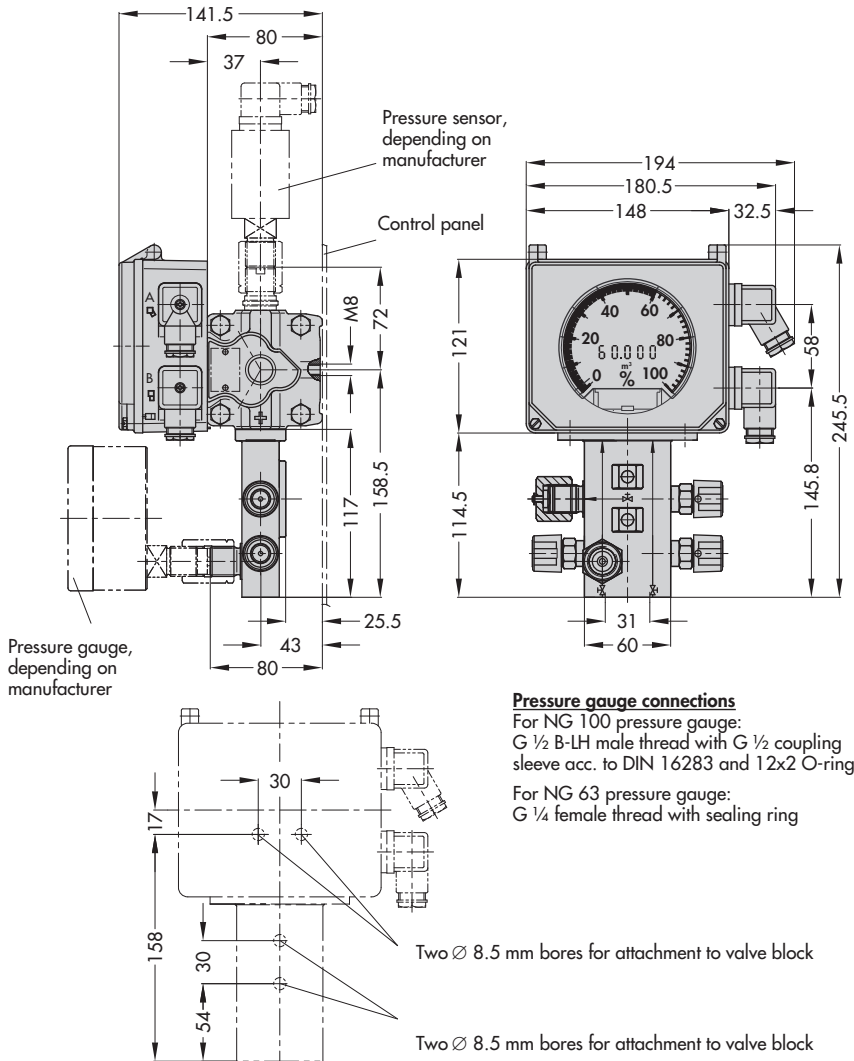


Fig. 9 · Dimensions



TRANSLATION

EC TYPE EXAMINATION CERTIFICATION

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres – Directive 94/9/EC

(3) EC Type Examination Certificate Number

PTB 00 ATEX 2074

(4) Equipment: Model MEDIA 5006-... I Differential Pressure Meter

(5) Manufacturer: SAMSON AG Mess- und Regeltechnik

(6) Address: Weismüllerstr. 3, D-60314 Frankfurt

(7) This equipment and any acceptable variation thereof are specified in the schedule to this certificate and the documents referred to therein.

(8) The Physikalisch-Technische Bundesanstalt, certified body number 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report.

PTB Ex 00-20139

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with

EN 50014: 1997 EN 50020: 1994

(10) If the sign “X” is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) According to the Directive 94/9/EC, this EC TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of the equipment.

This EC Type Examination Certificate may only be reproduced in its entirety and without any changes, schedule included. Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig
Ph26-5006.doc



(12) The marking of the equipment shall include the following:



Zertifizierungsstelle Explosionsschutz
By order Braunschweig, 29 June 2000

(Signature) (Seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirektor

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(13)

Schedule

(14) EC TYPE EXAMINATION CERTIFICATE No. PTB 00 ATEX 2074

(15) Description of Equipment

The Model MEDIA 5006...1 Differential Pressure Meter serves for measuring and indicating the differential pressure, or measured variables derived therefrom, in gases or liquids.

The Model MEDIA 5006...1 Differential Pressure Meter is a passive two-terminal network that may connected to all certified intrinsically safe circuits, provided the permissible maximum values of U, I and P are not exceeded.

The device may be used in hazardous and non hazardous locations.

The correlation between temperature classification and permissible ambient temperature range is shown in the table below.

Temperature class	Permissible ambient temperature range
T6	-20°C...60°C
T5	-20°C...70°C
T4	-20°C...80°C

Electrical data

Maximum values:
Signal circuit (plug A)

Type of protection: Intrinsic safety EX in IIC
only for connection to a certified intrinsically safe circuit

Ui ≤ 28 V

Uo ≤ 115 mA

Pi ≤ 1 W

CI ≤ 5,3 nF

U ≤ 30 µH

Maximum values:
Software limit switches (plug B)

Type of protection: Intrinsic safety EX in IIC
only for connection to a certified intrinsically safe circuit

Ui ≤ 20 V

Uo ≤ 60 mA

Pi ≤ 250 mW

CI ≤ 5,3 nF

U = negligible

(16) Test Report PTB Ex. 00-20139

(17) Special conditions for safe use

None

(18) Special Health and Safety Requirements

In compliance with the standards specified above

Zertifizierungsstelle Explosionsschutz
by order

(Signature) (seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, 29 June 2000

TRANSLATION

ADDENDUM No.: 1

in compliance with Directive 94/9/EC Annex III Clause 6
to the EC Type Examination Certificate PTB 00 ATEX 2074

Equipment: Model Media 5006-.1 Differential Pressure Meter

Marking:  II 2 G EEx ia IIC T6

Manufacturer: SAMSON AG

Address: Weismüllerstr. 3, D-60314 Frankfurt, Germany

Description of the additions and modifications

In future the Model Media 5006-.1 Differential Pressure Meter may be manufactured in compliance with the certification documents identified in the associated test report.

The circuit was modified for functional reasons.

The modifications related to the design and construction.

The electrical data are changed as follows:

Electrical data

Signal circuit (connector A)

Maximum values:

U = 28 V

I_i = 115 mA

P_t = 1 W

G_i = 9.3 nF

L_i = negligible

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PTB54dd-1.doc

Addendum No. 1 to the EC Type Examination Certificate PTB 00 ATEX 2074

Software limit switches (connector B)

Type of protection: Intrinsic Safety EEx ia IIC only for connection to a certified intrinsically safe circuit

Maximum values:

U = 20 V

I_i = 6 mA

P = 250 mW

C = 5.3 nF

L = negligible

All the other data apply without change also to this Addendum No. 1.

Test report: PTB EX 01-21060

Zertifizierungsstelle Explosionsschutz
By order Braunschweig, 07. June 2001

(Signature) (Seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirektor

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Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig

TRANSLATION

ADDENDUM No. 2

in compliance with Directive 94/9/EC Annex III Clause 6
to the EC Type Examination Certificate PTB 00 ATEX 2074

Equipment: Model Media 5006-1 Differential Pressure Gauge

Marking:  II 2G EEx ia IIC T6

Manufacturer: SAMSON AG Messe- und Regeltechnik

Address: Weismüllerstr. 3, D-60314 Frankfurt, Germany

Description of the additions and modifications

The Model Media 5006-1 Differential Pressure Gauge is permitted to be manufactured in the future also in compliance with the documents specified in the test records included in the test report.

The modifications relate to the internal and external construction.

All the other data apply also to this Addendum No. 2 without change.

Electrical data:

Signal circuit:.....
(plug A)

Type of protection: Intrinsic safety EEx ia IIC
Only for connection to a certified intrinsically safe circuit.

Maximum values:

U_i = 28 V

I_i = 115 mA

P_i = 1 W

C_i = 5.3 nF

L_i = 8 µH

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PKS25-Add-2.doc

ADDENDUM No. 2 to the EC Type Examination Certificate PTB 00 ATEX 2074

Software limit contact: ...
(plug B)

Type of protection: Intrinsic safety EEx ia IIC
(plug B) only for connection to a certified intrinsically safe circuit.

Maximum values:

U_i = 20 V

I_i = 60 mA

P_i = 250 mW

C_i = 5.3 nF

L_i = 8 µH

Type of protection EEx ia IIC
(internal circuit without external connection options)

Serial interface circuit:

Test report: PTB Ex 06-26073

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 24 August 2006

(Seal)

(Signature)
Dr. rer. L. Johannsmeyer
Director and Professor

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Physikalisch Technische Bundesanstalt - Bundesallee 100 - D - 38116 Braunschweig

PKS25-Add-2.doc

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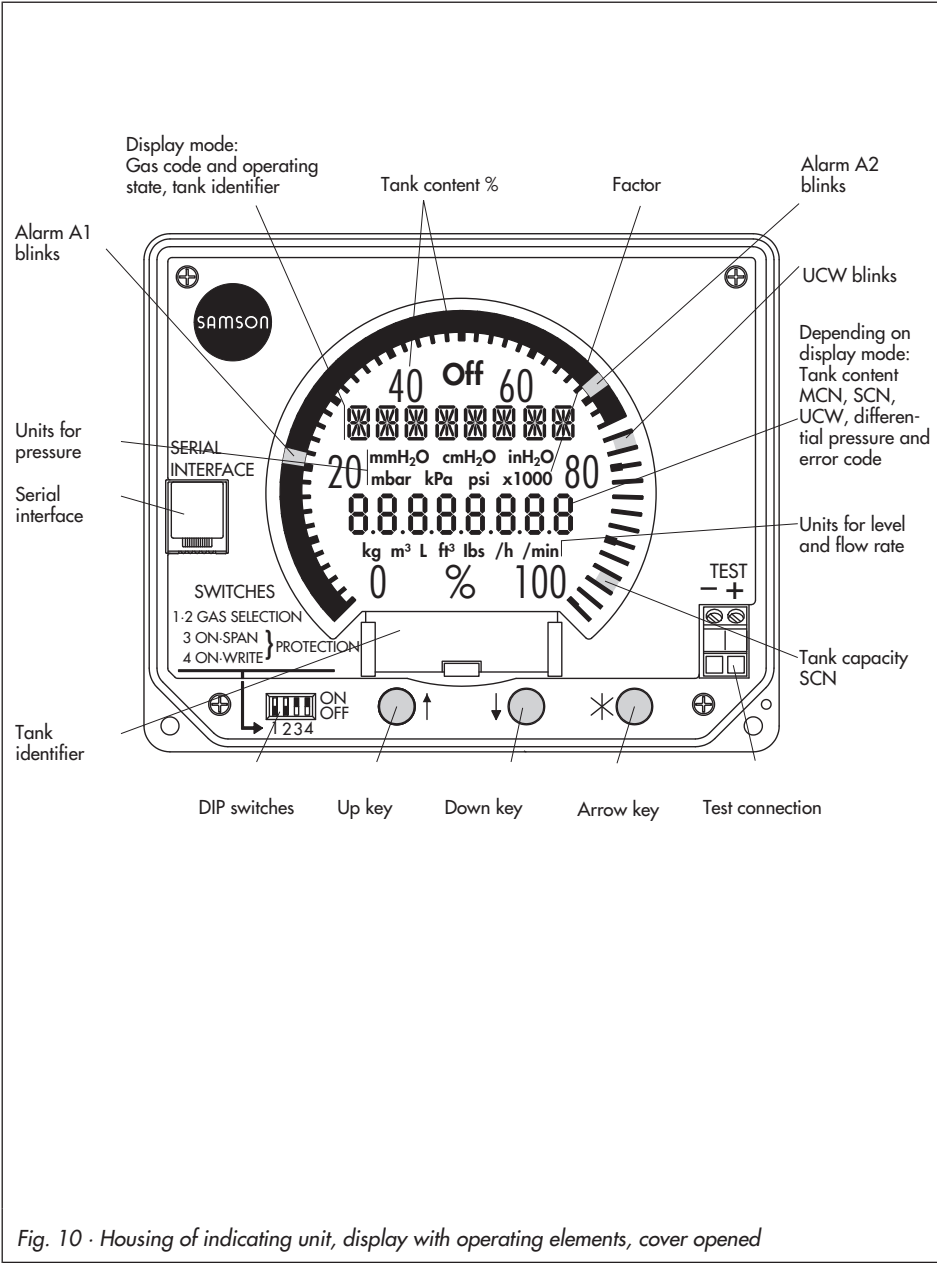


Fig. 10 · Housing of indicating unit, display with operating elements, cover opened



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